

1 1. (previously presented) A method of adding a watermark to a sequence of executable  
 2 instructions to render the sequence authenticatable,  
 3 the method comprising the steps of:  
 4 receiving the sequence of executable instructions and a key; and  
 5 using the key to modify the sequence of executable instructions so that the watermark is  
 6 obtainable from the modified sequence, the sequence being modified such that the usefulness of  
 7 the modified sequence for the sequence's intended purpose is not affected by the modifications  
 8 made thereto and the watermark representing a watermark value, alteration or absence of the  
 9 watermark value being used when the sequence is authenticated to determine whether the  
 10 sequence is authentic.

1 2. (canceled)

1 3. (previously presented) The method set forth in claim 1 wherein the step of modifying the  
 2 sequence includes the steps of:  
 3 using the key to determine locations in the sequence including modification locations at  
 4 which the sequence is to be modified; and  
 5 modifying the sequence at the modification locations such that the locations specified by  
 6 the key represent the watermark value,  
 7 whereby the watermark value is obtainable from the modification locations.

1 4. (original) The method set forth in claim 3 wherein the step of modifying the sequence includes  
 2 the step of:  
 3 inserting one or more executable instructions at each of the modification locations, the  
 4 inserted instructions having no effect on any output from the execution of the sequence of  
 5 instructions.

- 1   **5. (original)** The method set forth in claim 4 wherein:  
2           the instructions at the locations specified by the key represent values of digits of the  
3   watermark value.
- 1   **6. (original)** The method set forth in claim 1 further comprising the step of:  
2           providing the watermark value to an authenticating entity that authenticates the  
3   watermarked code.
- 1   **7. (original)** The method set forth in claim 1 further comprising the step of:  
2           providing the key to the authenticating entity.
- 1   **8. (previously presented)** The method set forth in claim 1 wherein:  
2           the modified sequence of executable instructions is modified such that when the modified  
3   sequence of executable instructions is executed, execution state is produced which has a property  
4   that depends on the key,  
5   whereby the watermark value is a description of execution state from the modified sequence.
- 1   **9. (previously presented)** The method set forth in claim 8 wherein:  
2           the execution state is a stack depth graph.
- 1   **10. (currently amended)** The method set forth in claim ~~9~~8 wherein:  
2           the execution state is output from the execution.
- 1   **11. (original)** The method set forth in claim 10 wherein:  
2           the property is an order of elements in the output.
- 1   **12. (original)** The method set forth in claim 10 wherein:  
2           the property is an additional element in the output.
- 1   **13. (original)** The method set forth in claim 10 wherein:  
2           the property is a class of an element in the output.

- 1   **14.** (original) The method set forth in claim 10 wherein:  
2       the property is a constraint that is satisfied by elements of the output.
- 1   **15.** (original) The method set forth in claim 8 further comprising the step of:  
2       providing a description of the produced execution state to an authenticating entity that  
3   authenticates the watermarked code.
- 1   **16.** (original) The method set forth in claim 15 further comprising the step of:  
2       providing the key to the authenticating entity.
- 1   **17.** (previously presented) The method set forth in claim 1 further comprising the step of  
2       providing the key to an authenticating entity that authenticates the sequence.
- 1   **18.** (previously presented) A method of authenticating a watermarked sequence of executable  
2   instructions, the watermark having been produced by modifying the sequence according to a key  
3   such that certain of the instructions in the sequence represent a watermark value,  
4   the method comprising the steps of:  
5       receiving the watermarked sequence or a copy thereof;  
6       using the key to locate the certain instructions in the received sequence and read the  
7   watermark value; and  
8       using alteration or absence of the watermark value to determine whether the received  
9   sequence is authentic.
- 1   **19.** (previously presented) The method of authenticating set forth in claim 18, the method further  
2   comprising the step of:  
3       receiving another watermark value; and  
4       in the step of using alteration or absence of the watermark value to determine whether the  
5   received sequence is authentic, the watermark value is compared to the other watermark value.

1   **20.** (original) The method of authenticating set forth in claim 19, the method further comprising  
2   the step of:  
3       receiving the key.

1   **21.** (previously presented) A method of authenticating a sequence of executable instructions that  
2   has been watermarked by modifying the sequence according to a key such that when the sequence  
3   is executed, first execution state is produced,  
4   the method comprising the steps of:  
5       receiving a description of second execution state; and  
6       if the received description does not describe the first execution state, determining that the  
7   sequence of executable instructions whose execution produced the second execution state is not  
8   authentic.

1   **22.** (previously presented) The method set forth in claim 21 further comprising the step of:  
2       receiving another description of the execution state, the other description describing  
3   execution state produced by the execution of the modified sequence; and  
4       in the step of determining, comparing the description and the other description.

1   **23.** (original) The method set forth in claim 22 wherein:  
2       the other description is a stack depth graph.

1   **24.** (previously presented) The method set forth in claim 21 wherein the execution state is output  
2   from the execution, the output having a property which can be determined using the key and  
3   the method further comprises the steps of:  
4       receiving the output from the execution; and  
5       the step of determining includes the steps of  
6           receiving the execution state;  
7           employing the key to determine the property; and  
8           comparing the determined property with the received description.

1   **25.** (original) The method set forth in claim 24 wherein:

2 the determined property is an order of elements in the output.

1 **26.** (original) The method set forth in claim 24 wherein:

2 the determined property is an additional element in the output.

1 **27.** (original) The method set forth in claim 24 wherein:

2 the determined property is a class of an element in the output.

1 **28.** (original) The method set forth in claim 24 wherein:

2 the determined property is a constraint that is satisfied by elements of the output.